

Remarks

I. Status of claims

Claims 1-10, 12, 13, and 15-25 are pending.

Claims 1, 8, 10, 22, and 24 have been amended.

II. Claim rejections under 35 U.S.C. § 112

A. Claim rejections under 35 U.S.C. § 112, first paragraph

The Examiner has rejected claims 1, 8, 22, and 24 under 35 U.S.C. § 112, first paragraph. In particular, the Examiner has asserted that:

The claim contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The applicant is using the term "pixel values" which are not defined or explained in the specification or in the claim language and therefore the term is considered new matter. Examiner has not been able to distinguish where in the specification "pixel values" as they have been termed in the claims have been described or explained. It is requested that applicant point out specifically where in the specification such terminology has been explained and discussed.

Each of claims 1, 8, 22, and 24 recites that image areas are segmented into multiple groups based on pixel values in the image areas.

With reference to FIGS. 5A and 5B, the specification explains that (page 10, lines 1-23; emphasis added):

[I]n one graphical encoding embodiment, information may be encoded into a bi-level image by a two-bit encoding process based upon the two-by-two halftone patterns (or matrices) illustrated in FIG. 5B. In accordance with this graphical encoding process, sub-matrices in base image 22 undergo a thresholding process and a bi-level half-toning process. For example, in one embodiment, sub-matrices in base image 22 that have a gray level that is less than 50% are encoded with one of the four bar code matrices in the 25% row of FIG. 5B. Sub-matrices in base image 22 that have a gray level that is at

least 50% are encoded with one of the four bar code matrices in the 75% row of FIG. 5B. In other embodiments, the encoding threshold level may be greater than or less than 50%. The particular bar code matrix used to render a sub-matrix of base image 22 is selected base upon the information to be encoded. For example, if "11" is to be encoded at a 75% gray level sub-matrix location, bar code matrix 76 is used to render that sub-matrix. Similarly, if "01" is to be encoded at a 25% gray level sub-matrix location, bar code matrix 78 is used to render that sub-matrix.

That is, the specification clearly discloses an exemplary embodiment in which image areas are segmented into multiple groups based on pixel values in the image area. In particular, image areas (or sub-matrices) in base image 22 are segmented into two groups based on the gray levels of the image areas: image areas with a gray levels less than 50% are segmented into a first group that is encoded with the set of code patterns in the 25% row of FIG. 5B; and image areas with a gray levels of at least 50% are segmented into a second group that is encoded with the set of code patterns in the 75% row of FIG. 5B.

The term "pixel" is a very well known term in the imaging arts that refers to the smallest addressable unit of an image. As is well-known, pixels are associated with one or more values that specify the intensity of light of a respective color to be displayed at a screen location corresponding to the pixel. For example, each pixel in a grayscale image has an associated value within a range of values (e.g., 0 to 255 in an eight-bit grayscale representation). One of ordinary skill in the art at the time of the invention clearly would understand that, in the exemplary embodiment described above, the gray levels of the image areas of base image 22 are computed based on the pixel values in the image areas. Indeed, the method described in Curry (U.S. 5,706,099) computes the gray level (or tone) of the halftone cells 20 based on grayscale pixel values in order to determine the thicknesses of the arcs 22 (see, e.g., col. 2, lines 31-32, and col. 3, lines 55-67).

Therefore, contrary to the Examiner's assertion, applicants submit that the subject matter recited in claims 1, 8, 22, and 24 is described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors had possession of the claimed invention at the time the application was filed.

For at least these reasons, the Examiner's rejection of claims 1, 8, 22, and 24 under 35 U.S.C. § 112, first paragraph, should be withdrawn.

B. Claims rejections under 35 U.S.C. § 112, second paragraph

The Examiner has rejected claims 1, 8, 10, 22, and 24 under 35 U.S.C. § 112, second paragraph, as being indefinite.

Each of these claims has been amended to address the Examiner's concerns and the rejections now should be withdrawn.

III. Claim rejections under 35 U.S.C. § 103 (a) over Cordery in view of Curry

The Examiner has rejected claims 1-10, 12, 13, and 21-23 under 35 U.S.C. § 103(a) over Cordery (U.S. 6,175,827) in view of Curry (U.S. 5,706,099).

A. Claims 1, 8, 22, and 24

Each of claims 1, 8, 22, and 24 recites that a base image is modulated with a graphical encoding of the corroborative digital token by segmenting image areas into multiple groups based on pixel values in the image areas, and encoding the segmented image areas with sets of two-dimensional code patterns, wherein each set of code patterns encodes a respective corresponding group of image areas.

The Examiner has asserted that "Curry clearly discloses all the steps of modulating an image for the purposes of embedding a digital data within a halftone image for security reasons." Contrary to the Examiner's assertion, however, Curry does not (1) segment image areas into multiple groups based on pixel values in the image areas, and (2) encode the segmented image areas with sets of two-dimensional code patterns, wherein each set of code patterns encodes a respective corresponding group of image areas. Curry's encoding method does not segment images area into multiple groups and then encode the image areas of each group with a respective corresponding set of code patterns, as recited in each of claims 1, 8, 22, and 24. In Curry's approach, only one set of halftone cells 20 (shown in FIG. 2) is used to encode data in an image. Accordingly, there would never be a reason to segment image areas into multiple groups for encoding with respective corresponding sets of code patterns because all image areas are encoded by the same set of halftone cells 20.

For at least these reasons, the Examiner's rejection of claims 1, 8, 22, and 24 under 35 U.S.C. § 103(a) over Cordery in view of Curry should be withdrawn.

B. Claims 2-7

Each of claims 2-7 incorporates the features of independent claim 1 and therefore is patentable over the combination of Cordery and Curry for at least the same reasons explained above in connection with claim 1.

C. Claim 9

Independent claim 9 requires the step of extracting a digital token from a payment indicium *based on a comparison of the payment indicium and a base image*.

The Examiner has asserted that "Curry clearly teaches the encoding and extraction of data within a graphical representation." In Curry's approach, however, the encoded halftone image 24 is decoded simply by detecting the rotational orientation of the arcs 22 in each halftone cell 20 in image 24. There is no need to compare the encoded halftone image 24 with the original, unencoded image. Indeed, such a comparison would not serve any purpose whatsoever in the process of decoding the encoded halftone image 24 in accordance with Curry's approach.

For at least this reason, the Examiner's rejection of claim 9 under 35 U.S.C. § 103(a) over Cordery in view of Curry should be withdrawn.

D. Claims 10, 12, 13, 22, and 23

Claim 10 is an independent claim. Claims 12, 13, 22, and 23 depend from independent claim 10.

1. Independent claim 10

With respect to independent claim 10, the Examiner has indicated that (emphasis added):

... What Cordery is not explicit is a printing characteristic that degrades with photographic reproductions such that the embedded payment information is extractable from an original rendering of the payment indicium but is un-extractable from a photographic reproduction of an original rendering of the payment indicium. However, Curry clearly teaches that using different resolution printing does affect the quality and clarity of the reproduced copy of the halftone image. ...

The observation that “using different resolution printing does affect the quality and clarity of the reproduced copy of the halftone image,” however, would not have led one of ordinary skill in the art at the time of the invention to set a printer to a printing resolution based on the identified *type* of the printer. Indeed, Curry does not even hint that the *type* of printer is a factor that should be considered when making a copy of the halftone image.

Therefore, no permissible combination of Cordery and Curry teaches or suggests a method of generating a payment indicium with a printer that includes the steps of identifying the type of printer and setting the printer a printing resolution based on the identified type of the printer, as now recited in claim 10.

The Examiner has indicated that (emphasis added):

Additionally, it is well known in the art that the higher the density of the original halftone image the harder it would be to reproduce the image with the watermark intact (see Wang, U.S. Patent No. 6,263,086). As well as copying a halftone image does depend on the original resolution of the image being copied as it is clear as technology changes the copying system have been improved to replicate a higher degree of resolution. Therefore, it would have been obvious to one having ordinary skill in the art at the time the current invention was made to use a higher density resolution image for printing the indicia on the mailing piece for better security as for prevention of copy reproduction.

The Examiner’s unsupported conclusion (underlined above), however, still does not result in a method of generating a payment indicium in which a printer is set to a resolution based on the identified *type* of the printer.

For at least these reasons, the Examiner’s rejection of independent claim 10 under 35 U.S.C. § 103(a) over Cordery in view of Curry should be withdrawn.

2. Dependent claims 12, 13, 22, and 23

Claims 12, 13, 22, and 23 incorporate the features of independent claim 10 and, therefore, these claims are patentable for at least the same reasons explained above. Claims 22 and 23 also are patentable for the same reasons explained above in connection with claim 1.

E. Claim 21

Claim 21 incorporates the features of independent claim 8 and therefore is patentable over the combination of Cordery and Curry for at least the same reasons explained above in connection with claim 8.

IV. Claim rejections under 35 U.S.C. § 103 (a) over Cordery in view of Klemba

The Examiner has rejected claims 15-20, 24, and 25 under 35 U.S.C. § 103(a) over Cordery (U.S. 6,175,827) in view of Klemba (U.S. 6,175,827).

A. Independent claim 15

Claim 15 requires the step of “encoding payment information into a corroborative digital token with at least one *encoding level* that varies depending on a payment value specified in the payment information.” The Examiner has asserted that:

Cordery clearly discloses that,
one or more encoding parameters vary with payment value, an encoding security level parameter varies with payment value, an encoding robustness parameter varies with payment value, an error correction code redundancy parameter varies with payment value.

Contrary to the Examiner's assertions, however, Cordery does not teach suggest anything about varying a digital token encoding level depending on a payment value specified in the payment information.

The Examiner has cited the following sections of Cordery to support his assertions:

Abstract:

The Abstract indicates that an error correction code is used to verify the validity of evidencing information for a document. The Abstract, however, does not teach or suggest “encoding payment information into a corroborative digital token with at least one encoding level that varies depending on a payment value specified in the payment information,” as recited in claim 15.

Figures 2-7 and associated text:

FIG. 2 shows an error correction code 212 printed on a mail piece. FIGS. 3-5 show error correction codes printed in respective 2D bar codes on respective mail pieces. FIG. 6 shows a flow chart of a mail piece generation process in which a digital token is computed with an error correction code as an input. FIG. 7 shows a process of verifying a mail piece based on an error correction code. FIGS. 2-7, and the accompanying text, however, do not teach or suggest “encoding payment information into a corroborative digital token with at least one encoding level that varies depending on a payment value specified in the payment information,” as recited in claim 15.

Col. 5, lines 60-68:

At col. 5, lines 60-68, Cordery merely indicates that an error correction code for information on a document is generated and that a digital token is generated using the error correction code. This disclosure, however, does not teach or suggest “encoding payment information into a corroborative digital token with at least one encoding level that varies depending on a payment value specified in the payment information,” as recited in claim 15.

Col. 6, lines 1-40:

At col. 5, lines 1-40, Cordery teaches that an error corrected code that is printed on a document is used to verify the validity of evidencing information. This disclosure, however, does not teach or suggest “encoding payment information into a corroborative digital token with at least one encoding level that varies depending on a payment value specified in the payment information,” as recited in claim 15.

Col. 7, lines 11-68:

At col. 7, lines 11-68, Cordery merely explains the general purpose of a digital indicium and that his system address the requirement of providing a linkage between the mail piece and the indicium. This disclosure, however, does not teach or suggest “encoding payment information into a corroborative digital token with at least one encoding level that

varies depending on a payment value specified in the payment information,” as recited in claim 15.

Col. 9, lines 40-51:

At col. 9, lines 40-51, Cordery explains that the process of producing digital tokens, digital signature or ciphertext by postage evidencing devices is well known. This disclosure, however, does not teach or suggest “encoding payment information into a corroborative digital token with at least one encoding level that varies depending on a payment value specified in the payment information,” as recited in claim 15.

Col. 12, lines 1-60:

At col. 12, lines 1-60, Cordery describes a method of verifying the validity of evidencing information for a document. Nowhere in this section does Cordery teach or suggest “encoding payment information into a corroborative digital token with at least one encoding level that varies depending on a payment value specified in the payment information,” as recited in claim 15.

Col. 14, lines 28-60:

At col. 14, lines 28-60, Cordery describes the elements of a mail piece 302 with a printed 2d bar code 324 that includes an error correction code associated with addressee information 306. This disclosure, however, does not teach or suggest “encoding payment information into a corroborative digital token with at least one encoding level that varies depending on a payment value specified in the payment information,” as recited in claim 15.

Thus, none of the sections of Cordery’s disclosure cited by the Examiner supports his assertion that Cordery’s teaches varying the encoding level of a digital token depending on a payment value specified in the payment information.

The Examiner has indicated that (original emphasis):

What Cordery is not clear on is an encoding private key bit length parameter varies with payment value. It is clear that as the mail count and amount of the registers change the token is changing as well that is a basis of creation of none-similar tokens in the postage meter system.

The “mail count and amount of the registers” in Cordery’s approach, however, has nothing whatsoever to do with the *level* at which payment information is encoded into a corroborative digital token. In addition, the fact that each token generated by Cordery’s

approach is unique is irrelevant: all tokens are encoded with an encoding level that is independent of the specified payment value.

It is noted that, with respect to the error correction level used in his system, Cordery teaches that (col. 17, lines 18-22):

The level of error correction can be different for different parts of the document. A simple error-detection code can be used for some lines; some selected critical lines may, at the signer's discretion, employ a code that allows reconstruction of the selected lines...

That is, Cordery teaches that the error correction level can be different for *different parts of the document*, but this teaching would not suggest to one of ordinary skill in the art at the time of the invention to encode payment information into a corroborative digital token with at least one encoding level that varies depending on a *payment value* specified in the payment information, as recited in claim 15.

For at least these reasons, the Examiner's rejection of independent claim 15 under 35 U.S.C. § 102(e) over Cordery should be withdrawn.

B. Claims 16-20, 24, and 25

Claims 16-20, 24, and 25 incorporate the features of independent claim 15 and, therefore, these claims are patentable for at least the same reasons explained above.

The Examiner has indicated that (emphasis added):

[T]he use of variable length encryption is an obvious design choice, it is clear that higher security levels require higher value assets in regards to more complicated means of encryption and decryption (here the asset is the postage value amount). This is truer for monetary asset indicators such as indicium related to a postage amount. It is clear that the higher the value of the asset particularly monetary assets the higher the bit length of the encryption. Klemba sets the stage for having variable encryption schemes and bit lengths for different assets of different value for the purposes of encryption of variable data, depending on the value of the assets (Here postage amount and indicium). As it is clear by Klemba's teaching (see Klemba column 2, lines 63-68 and column 8, lines 1-15). In addition it is clear that using the higher bit length requires a higher resource to encrypt and decrypt an asset. Therefore, it would have been obvious to one having ordinary skill in the art

at the time the current invention was made to use the variable bit length encryption based on the value of the asset that is being encrypted and save on usage of resources and create a higher security for the indicium.

Klemba merely describes a scheme that allows a user to easily reconfigure a cryptographic unit to comply with the different cryptographic policies of different national governments. The section of Klemba cited by the Examiner merely teaches that his cryptographic scheme is flexible enough to handle a governmental policy that requires performing multiple types of cryptography at the same time. In this section, Klemba provides an example in which a particular one of multiple different types of cryptography is selected for an application depending on whether or not the application has a *Key Escrow requirement*; contrary to the Examiner's implication, the selected type of cryptography does not depend on *asset value*.

Whether or not "Klemba sets the stage for having variable encryption schemes and bit lengths for different assets of different value" is irrelevant to determining patentability under 35 U.S.C. § 103(a). MPEP § 706.02(j) provides the proper standard that the Examiner must meet into order to establish a proper *prima facie* case of obviousness under § 103:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the references or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not on applicants' disclosure.

The Examiner has failed to meet this standard.

Moreover, the basis for the clarity of the Examiner's assertions is not found in the cited references. Rather, this clarity is entirely invented by the Examiner without any support. The Examiner therefore has failed to provide the requisite factual basis and failed to establish the requisite motivation to support his deemed conclusion that the features recited in claims 16-20, 24, and 25 would have been obvious to one of ordinary skill in the art at the time of the invention. The Examiner is requested to cite art in support of his assertions.

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Alternatively, if the Examiner is aware of facts within his personal knowledge that provide the requisite factual basis and establishes the requisite motivation to support his deemed conclusion that the features recited in claim 10 would have been obvious, the Examiner is requested to provide an affidavit in accordance with 37 CFR § 1.104(d)(2). Otherwise, the rejection should be withdrawn.

For at least these additional reasons, the Examiner's rejection of claims 16-20, 24, and 25 under 35 U.S.C. § 103(a) over Cordery in view of Klemba must be withdrawn.

V. Conclusion

For the reasons explained above, all of the pending claims are now in condition for allowance and should be allowed.

Charge any excess fees or apply any credits to Deposit Account No. 08-2025.

Respectfully submitted,



Edouard Garcia
Reg. No. 38,461
Telephone No.: (650) 631-6591

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Please direct all correspondence to:

Hewlett-Packard Company
Intellectual Property Administration
Legal Department, M/S 35
P.O. Box 272400
Fort Collins, CO 80528-9599